

CONVERSION KIT  
INSTALLATION AND SERVICE MANUAL



DATA EAST USA, INC.

470 Nimitz Drive  
San Jose, California 95112  
Telephone (408) 266-7000

700-0111-09

**ROBOCOP™**

**CONVERSION KIT**

**MODEL NUMBER: 1US37K**

**INSTALLATION & SERVICE MANUAL**

**TABLE OF CONTENTS**

<b>1. GENERAL INFORMATION</b>	
A. Specific Requirements.....	1
B. List of Materials.....	1
C. Installation Instructions.....	2
<b>2. GAME INFORMATION</b>	
A. Game Options.....	6
B. PCB Edge Connector Pin-Out.....	7

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470 NEEDLES DRIVE  
SAN JOSE, CA 95112  
(408) 286-7074

780-0111-00

## 1. GENERAL INFORMATION

### A. Specific Requirements

The ROBOCOP™ game is a one or two player video game conversion kit. It is intended to be installed into an existing video game cabinet, and comes with all the necessary components to make the converted game look and play like a new dedicated game!

THE GAME TO BE CONVERTED MUST MEET THE FOLLOWING REQUIREMENTS

MONITOR	Horizontal, RGB, negative Composite Sync input
POWER SUPPLY	+ 5VDC @ 7 amp, +12VDC @ 1 amp

### B. List of Materials

The following items are provided with your ROBOCOP™ generic kit. When ordering replacement parts, please be sure to provide the complete description and part number.

<u>ITEM</u>	<u>PART NUMBER</u>	<u>QTY</u>	<u>DESCRIPTION</u>	<u>REMARKS</u>
01	036-0158-02	1	Hrns, JAMMA - GENERIC KIT	
02	180-0024-04	2	Pshbtn Assy, W/Microsw, Yellow	start
03	180-0024-02	2	Pshbtn Assy, W/Microsw, Red	shoot/punch
04	180-0024-06	2	Pshbtn Assy, W/Microsw, Blue	jump
05	406-0085-00	2	Label set, pushbutton ID	generic
06	406-0003-00	1	Label, FCC Warning	
07	450-0014-01	1	Joystick, Happ Ctrl, 8 way	w/microswitches
08	510-0142-00	1	PCB set, ROBOCOP	
09	660-0001-00	1	Plex, Clear, 23.75 X 7.6 X .125	(for control pn1)
10	660-0001-02	1	Plex, Clear, 24 X 9 X .125	(for marquee)
11	780-0111-00	1	Manual, Instruction, ROBOCOP Kit	
12	780-0116-00	1	Manual, Technical Support, ROBOCOP	
13	800-0030-00	1	Overlay, Ctrl Pn1, Generic	blue DATA EAST
14	810-0035-00	1	ea Underlay, Mon. ROBOCOP	
15	820-0046-00	2	ea Decal, Side, ROBOCOP	
16	830-0042-00	1	ea Insert, Marquee, ROBOCOP	

### C. Installation Instructions

When selecting a game to convert, make sure that the Power Supply, the Monitor, and the Coin Acceptors are functional. There is nothing more frustrating than installing a conversion kit and having it not operate due to a faulty Monitor or Power Supply. I know...we will all suspect that the new Logic PCB is defective, right?

It is mandatory that the cabinet be wired to conform with all National and Local Electric Code requirements before the conversion is attempted. The primary section must have adequate noise filtering on the AC line to prevent unwanted conducted radio frequency interference. "Adequate" is defined as a filter with both common mode and differential mode filtering and a minimum current capacity of 2 1/2 amperes.

According to the FCC and other regulatory agencies, every video game must be clearly labeled with the Name and Address of the Original Manufacturer, Date of Manufacture (or serial number), Voltage Rating, Current Rating, Suitability for indoor or outdoor use, and Model Number. In addition, the FCC requires that after conversion, the unit must be labeled with a suitable warning stating that radio frequency interference may result from use in a residential area. An acceptable sticker is included in this kit.

**IT IS THE RESPONSIBILITY OF THE PERSON PERFORMING THE INSTALLATION TO COMPLY WITH ALL LABELING REQUIREMENTS.**

#### TAKING IT APART...

Performing a few simple tasks when preparing a game to be converted can save you much time and effort when you are installing the conversion kit.

Find the wiring diagram of the game to be converted! You will need to identify the required DC power supply output wires and the monitor video and sync wires. Note the color coding of these wires or better yet, label them as to their function. This kit contains a new Main Harness, but you will need to splice it into the existing power supply and video wires.

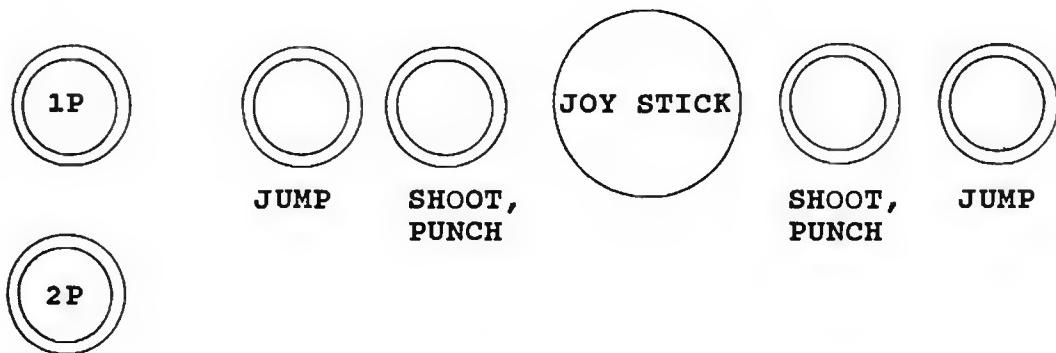
Remove the existing game harness parts that will not be used in this conversion. NOTE: You are modifying only the secondary (DC from power supply) and I/O (video, speaker, and controls) section of the wiring. DO NOT MODIFY OR REMOVE THE PRIMARY AC WIRING. The primary AC wiring has been designed and built to comply with UL and FCC regulations and must not be altered.

### C. INSTALLATION INSTRUCTIONS (cont.)

Remove the original game pcb from the cabinet. Remove all exterior decals, and repair any cabinet damage. Repaint the cabinet if necessary. Remove the monitor plex (or glass). If your plex has silkscreened art work on it, you will need to strip it off, or replace it with a new piece cut to the same size. Using the old Monitor Plex as a template, cut the Monitor Underlay card, supplied with this kit, to the same size as the old plex. NOTE: Be certain that the opening in the Underlay Card lines up with the monitor screen.

Remove the Marquee Plex from the game and use it as a template to cut the new, clear Marquee Plex down to the correct size. Install the Marquee Insert (lexan overlay) to the marquee clear plex, and trim before installing. Remove the control panel from the game and remove all controls and graphics from it. Drill and/or punch any required new holes for the control panel. ROBOCOP™ requires one button for 'Shoot & Punch,' and another button for 'jump' control. See the diagram below for a suggested control panel layout. You will also need a '1 player' and '2 player' start button. If you are going to cover the control panel with clear plex (one piece provided with this kit), you should carefully cut it to fit the control panel at this time. Thoroughly clean the control panel so that the new control panel overlay will adhere to it aggressively.

FIGURE 1. Suggested Control Panel Layout



### C. Installation Instructions (cont.)

Install the Control Panel Overlay by peeling off the paper backing and carefully laying the overlay down onto the panel. Smooth it out starting in the center and working your way out to the edges, removing all of the trapped air pockets. If possible, cut the edges of the overlay oversize and fold the excess under the panel. Cut out the button and joystick holes. Install the Control Function Labels found on the sheet of labels supplied in your kit. NOTE: Install the Control Function Labels in the formation shown in Figure 1.

Cover the Control Panel Overlay and Control Function Labels with a clear plex to protect the overlay and labels. Install the buttons and joystick at this time. Mount the completed control panel to the cabinet.

Game PCB: Mount the game PCB set to a convenient wall of the cabinet using the mounting feet and hardware supplied with the PCB.

Power Supply Wiring: Plug the Main Harness edge connector onto the Game PCB's edge connector. Separate the DC Power wires and route them through the cabinet to the Power Supply. Try to keep the length of these wires to a minimum for best results. NOTE: Use a minimum of 2 wires EACH for the +5 Volts and the Ground lines between the Power Supply and the PCB. Terminate them at the Power Supply as required.

**NOTE: IMPROPER WIRING WILL DAMAGE THE PCB SET AND VOID YOUR WARRANTY!**

**THE DATA EAST MAIN HARNESS HAS LABELS ON THE EDGE CONNECTOR TO ASSIST IN IDENTIFYING EACH TERMINAL'S PIN NUMBER AND FUNCTION.**

Player Control Wiring: Route the Pushbutton and Joystick wires up to their proper destinations, cut to length, and terminate as required.

**REFER TO THE EDGE CONNECTOR PIN-OUT ON PAGE 7 FOR WIRE COLOR AND FUNCTION INFORMATION.**

NOTE: No EMI Filter PCB is required for this conversion kit as suitable filtering is provided on the Main PCB Set.

**C. Installation Instructions (cont.)**

**Monitor Wiring:** The game PCB set has outputs for Positive Red, Green, Blue, and Negative Composite Sync. If your monitor has separate Horizontal and Vertical sync inputs, hook the Composite sync to the negative Horizontal input. This method will work on most monitors; however, some model Electrohomes require that the Composite sync signal be hooked up to both the negative Horizontal and Vertical inputs. Contact your distributor for more information if you are uncertain as to how to hook up the monitor wires.

**Coin Door:** The Coin Counter(s) may be the 12 volt or 6 volt type as the game PCB utilizes an open collector drive circuit. Hook one coin counter wire to the required voltage (+12v or +5v) and the other wire to the coin counter signal wire from the game PCB.

**Graphics:** Install the Game Instruction Labels onto the Underlay Card, either in the lower portion, or on one side of the picture tube cutout. Install the Underlay Card under a clear monitor plex (or glass). Mount the new Marquee Plex, and install the Side Decals. **NOTE: Install the FCC Warning label to the upper rear of the cabinet.**

**THE BIG TEST!**

**REMOVE THE MAIN HARNESS EDGE CONNECTOR FROM THE GAME PCB!**

Apply power to the game. Measure the +5 volts at the edge connector and adjust to +5.15 VDC using a Digital Multi-Meter. Measure the +12 and -5 vdc wire to be certain they are connected properly and are on the correct terminals. Remove power from the game.

**RE-CONNECT THE MAIN HARNESS EDGE CONNECTOR!**

Apply power to the game once again. The attract mode video should appear on the screen. Adjust the picture size and colors on the monitor to get the optimum appearance. Adjust the Sync and Hold controls on the monitor for a stable picture. Coin it up and give it a try! Test all the controls and sound for proper operation.

Congratulations! You have successfully installed your Data East conversion kit! We hope that it gives you many years of successful operation.

2. GAME INFORMATION

A. OPERATOR SELECTABLE OPTIONS

The ROBOCOP™ game allows for operator adjustable pricing, bonus lives, difficulty, etc. These are accessed by the two 8 position dipswitches located on the main logic pcb. Tables 1 and 2 outline the available options.

TABLE 1 - DIPSWITCH 1

	1	2	3	4	5	6	7	8
Game Charge (right)	1 Coin = 1 Credit: 1 Coin = 2 Credit:	OFF ON	OFF OFF					
COIN 1	1 Coin = 3 Credit: 2 Coin = 1 Credit:	OFF ON	ON ON					
Game Charge (left)	1 Coin = 1 Credit: 1 Coin = 2 Credit:		OFF ON	OFF ON				
COIN 2	1 Coin = 3 Credit: 2 Coin = 1 Credit:			OFF ON				
Attract mode sound?	YES: NO:					OFF ON		
Flip Screen?	NORMAL: REVERSE:				F F		ON OFF	
Cocktail Table: Upright game:								OFF ON

TABLE 2 - DIPSWITCH 2

	1	2	3	4	5	6	7	8
Player's energy	med: high: low: very high:	OFF ON OFF ON	OFF OFF ON ON				A L W A L W	A A L W
Game Difficulty	Normal: Easy: Hard: Hardest:		OFF ON OFF ON	OFF OFF ON ON			A Y S S	A Y S S
Continue Mode ?	Yes: No:				OFF ON		O F	O F
Player's energy in the bonus stage	High: Low:				OFF ON		F F	F F

B. PCB Edge Connector Pin-Out

The game PCB set uses a 56 pin "JAMMA" standard Edge Connector pin-out as shown below in Figure 2.

WIRE COLOR	SOLDER SIDE	PIN#	PIN#	PARTS SIDE	WIRE COLOR
BK		GROUND A1	B1	GROUND	BK
BK		GROUND A2	B2	GROUND	BK
RD		+5 VOLTS A3	B3	+5 VOLTS	RD
RD		+5 VOLTS A4	B4	+5 VOLTS	RD
BL		-5 VOLTS A5	B5	-5 VOLTS	BL
OR		+12 VOLTS A6	B6	+12 VOLTS	OR
		BLOCKING KEY A7	B7	BLOCKING KEY	
VI		COIN COUNTER 2 A8	B8	COIN COUNTER 1	SL
		A9	B9		
WH/BK		SPEAKER (-) A10	B10	SPEAKER (+)	BK/WH
GN		A11	B11		
GR		VIDEO-GREEN A12	B12	VIDEO-RED	RD
WH		VIDEO-SYNC A13	B13	VIDEO-BLUE	BL
YL		SERVICE SW. A14	B14	VIDEO GROUND	BK
		A15	B15	TEST SW.	* BK/GN
RD		COIN SWITCH 2 A16	B16	COIN SWITCH 1	GN
RD/WH		2P START A17	B17	1P START	BN/WH
YL/WH		2P UP A18	B18	1P UP	YL
GN/WH		2P DOWN A19	B19	1P DOWN	GN
OR/WH		2P LEFT A20	B20	1P LEFT	OR
RD/WH		2P RIGHT A21	B21	1P RIGHT	RD
BL/WH		2P SHOOT A22	B22	1P SHOOT	BL
VI/WH		2P JUMP A23	B23	1P JUMP	VI
PK/WH		NOT USED A24	B24	NOT USED	PK
		A25	B25		
		A26	B26		
BK		GROUND A27	B27	GROUND	BK
BK		GROUND A28	B28	GROUND	BK

FIGURE 2

### FCC WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the instructions manual, may cause harmful interference to radio communications. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment.

Operation of this equipment in a residential environment is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

### FBI WARNING

Federal law provides severe civil and criminal penalties for the unauthorized reproduction, distribution, or exhibition of copyrighted audio-visual works and video games. The Federal Bureau of Investigation investigates allegations of criminal copyright infringement.

### COPYRIGHT NOTICE

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### ENVIRONMENTAL DATA

This product is intended for use indoors only. Power requirements are 105-125 volts AC, 50-60 Hz, and requires a 3 wire grounded outlet.

### SERVICE PROCEDURES

To obtain replacement parts and technical service, contact the authorized Data East Distributor in your area. If you require referral or further technical assistance, you may contact Data East's Customer Service department during the hours of 9:00 am to 5:00 pm Pacific Time at (408) 296-7074.

### AMA WARNING

DATA EAST USA, INC., in cooperation with the American Amusement Machine Association, has installed an "AMA PROTECT" certification label on each ROBOCOP PCB manufactured for legal sale in the United States of America.

If you are offered a ROBOCOP PCB that does not have the "AMA PROTECT" certification label, you should suspect that the board is not legal and should contact DATA EAST USA, INC., at (408) 296-7074, or Bob Foy of the AAMA at (703) 548-8844.

## **WARRANTY INFORMATION**

Data East USA, Inc. ("Seller"), warrants only to the original purchaser ("Buyer"), of its products that the items listed below are free from defects in material and workmanship under normal use and service for the period specified:

**GAME LOGIC PRINTED CIRCUIT BOARD(S)**

**90 DAYS**

No other parts of the Seller's products are warranted.

Warranty periods are effective from date of initial shipment from Seller to Buyer. Seller's sole liability shall be, at its option, to repair or replace products which are returned to Seller during the warranty periods specified, provided:

1. Seller is notified promptly upon discovery by Buyer that stated products are defective.
2. Such products are properly packaged and then returned freight pre-paid to a place specified by Seller.

This warranty does not apply to products damaged during shipment and/or due to improper handling, or due to improper installation or usage, or alteration. In no event shall Seller be liable for any anticipated profits, loss of profits, loss of use, accidental or consequential damages, or any other losses incurred by the customer in connection with the purchase of a Data East USA, Inc. product.

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